

current state of the electronic device (e.g., what application is currently being executed and/or what operation(s) the user just performed).

[0046] Once the operation(s) likely to be requested by the user have been identified based on the characteristics of the tactile inputs detected and the contextual information received, the electronic device (e.g., processor or similar means operating on the electronic device) may then, at Block 305, display an indicator associated with each of one or more operations determined, wherein the indicator may provide an illustration of the gesture associated with performance of that operation or command by the user. In other words, the indicator may provide a reference that the user can use to perform the gesture necessary to request the corresponding operation or perform the corresponding command. FIGS. 4A through 5B provide examples of indicators that may be displayed in accordance with embodiments of the present invention. As one of ordinary skill in the art will recognize, however, these illustrations are provided for exemplary purposes only and should not be taken in any way as limiting the scope of embodiments of the present invention to the examples provided. In fact, the indicator(s) may be displayed in any number, manner and in any position on the touchscreen in accordance with embodiments of the present invention.

[0047] Referring to FIGS. 4A and 4B, in one embodiment, the display of the indicator may be varied based on the context. For example, as shown in FIG. 4A, if the predicted operation is to paint or draw, the indicator may be in the form of a paint brush or pencil 401 that follows the position of the user's finger contacting the touchscreen. As another example, as shown in FIG. 4B, when the predicted operation is to rotate a still image, the indicator may be in the form of a circle having directional arrows 402, wherein the position of the indicator 402 may be fixed and independent of the actual location of the tactile input and wherein the angle of the indicator 402 may indicate the angle to which the image has been rotated. In the latter example, the rotation indicator 402 may have been selected based on some combination of the detection of three tactile inputs, the identification of the thumb, index and middle fingers, and the fact that a still image viewer application is currently being operated.

[0048] In one embodiment, the analysis performed at Block 304 may result in only one possible or appropriate operation or command. Alternatively, a number of likely operations or commands may result. In the former instance, the electronic device (e.g., processor or similar means) may display an indicator associated with only the appropriate operation or command. In the latter instance, the electronic device (e.g., processor or similar means operating thereon) may further select from the likely candidates the most likely candidate. This may be based, for example, on a determination of which of the likely operations or commands was most frequently performed by the user in this or a similar situation. The electronic device (e.g., processor or similar means) may thereafter display either only a single indicator associated with the most likely operation or command, or several indicators associated with the likely operations or commands, respectively, with the most likely highlighted in some manner (e.g., by making the indicator associated with the most likely operation or command larger, darker, brighter, etc.). FIGS. 5A and 5B provide one example of how more than one indicator may be displayed. As shown, in this example, the most likely operation identified may be to scale the displayed image, while another likely operation may have been to warp

the image. As a result, while indicators may be displayed for both scaling 501 and warping 502, the indicator associated with scaling 501 may be larger than that associated with warping 502.

[0049] At some point thereafter, the user may perform a gesture associated with an operation or command, which may be detected by the electronic device (e.g., processor or similar means) at Block 306. In response, the electronic device (e.g., processor or similar means operating thereon) may cause the requested operation or command to be performed. (Block 307). If the prediction made at Block 304 was correct, the gesture detected may correspond to the indicator displayed at Block 305. However, as one of ordinary skill in the art will recognize, embodiments of the present invention are not limited to this particular scenario. Alternatively, the user may perform any gesture which can be recognized by the electronic device (e.g., processor or similar means) and used to trigger a particular operation or command. In the event that the user performs a gesture that does not correspond to a displayed indicator, according to one embodiment, a new indicator may be displayed that corresponds to the gesture currently being or just performed.

[0050] Referring again to FIGS. 5A and 5B, in the instance where the user wishes to perform an operation that is associated with one of the indicators displayed, but not the primary indicator (e.g., not the indicator associated with the identified most likely operation), the user may do one of at least two things. According to one embodiment, the user may simply perform the gesture associated with desired operation. Alternatively, the user may first tap the screen at the location at which the indicator associated with the desired operation is displayed, and then perform the corresponding gesture. In either embodiment, as shown in FIG. 5B, the indicator associated with the desired operation, which in the example provided is the indicator associated with warping the image 502, may become the only indicator displayed. Alternatively, while not shown, the other indicators may remain (e.g., that associated with scaling the image 501), but the indicator associated with the operation requested may now be highlighted.

[0051] In addition to the foregoing, according to one embodiment, the electronic device (e.g., processor or similar means operating thereon) may instantly update a displayed indicator based on a change in one or more characteristics associated with a detected tactile input. To illustrate, in the example shown in FIGS. 5A and 5B, the scaling and warping operations or commands may have been identified at Block 304 based on some combination of the fact that two fingers were detected, the fingers identified were the thumb and index finger, and the application currently being executed was a still image viewer. If at some point before a gesture is performed, the user adds his or her middle finger to the touchscreen resulting in the change in the characteristics of the detected tactile input, the electronic device (e.g., processor or similar means) may again perform the operation of Block 304 and this time determine, for example, that the most likely operation is to rotate the image. As a result, a new indicator may be displayed that is, for example, similar to that shown in FIG. 4B.

[0052] While not shown, according to embodiments of the present invention, the displayed indicator(s) may disappear when the user removes his or her finger(s) or other selection devices from the touchscreen and/or when the user performs the desired gesture.